Grandway
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GRANDWAY OPTICAL INSTRUMENTS SERIES

User's Guide to the FHP1A/B02

Mini Optical Power Meter

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Mini Optical Power Meter

1 Introduction

The FHP1 series are full featured mini sized optical power meters designed for use with an optical laser source to perform optical loss measurements on optical fiber cables.
Utilizing state-of-the-art SMT in its manufacture, optical connections to the FHP1 are made via the universal adapter interface on the top of the unit. The instrument has 6 working wavelengths to totally satisfy your needs. It can be extensively used in telecommunication projects and other situations where optical power of wavelengths close to infrared ray needs to be measured.

Main Features:

≫ Small size with light weight, saving power and easy to carry
≫ Supply with linear and logarithmic optical power display

2 Warranty

Three Years Limited Warranty

Grandway products are warranted against the defective components and workmanship for a period of three years from the date of delivery to the original customer. Any product found to be defective within the warranty period would be returned to Grandway authorized service center for repair, replacement and calibration.

Exclusions

The warranty on your equipment shall not apply to defects resulting from the following:

- Unauthorized repair or modification
- Misuse, negligence, or accident

Returning Product

To return product, you may contact Grandway to obtain additional information if necessary.
To serve you better, please specify the reasons for the return.
All delivery and mails should be sent to the following address:

Grandway Customer Service
6F, Xin'an building No. 99 Tianzhou Road
Shanghai, 200233 P.R. China

Contact Us

Tel: 0086-21-54451260/61/62/63
Fax: 0086-21-54451266
E-mail: heyong@grandway.com.cn
or
overseas@grandway.com.cn
Website: www.grandway.com.cn

3 Safety Information

Warnings!

- Never look directly into optical outputs or a fiber while the equipment is on.Invisible laser beam may damage your eyes.
- Do not short-circuit the terminal of AC adapter / charger and the batteries.Excessive electrical current may cause personal injury due to fumes,electric shock or equipment damage.
- Connect AC power cord with the equipment and wall socket properly. While inserting the AC plug, make sure there is no dust or dirt on the terminals and both plugs are fully seated. Incomplete engagement may cause fuming, electric shock or equipment damage and may result in personal injury.
- Do not operate the equipment near hot objects, in hot environments, in dusty/ humid atmosphere or when condensation is present on the equipment. This may result in electric shock , product malfunction or poor performance.

4 Preparing for Operation

4.1 Unpacking the instrument

Packing material

We suggest that you keep the original packing material. Using the original packing material is your guarantee of protecting the instrument during transit.

Checking the package contents

The standard accessories of FHP1 are as follows:

- Main Unit
- Carrying Case
- 5V AC/DC Adapter
- FC/PC, SC/PC,ST/PC Interchangeable Connectors
- User's Guide
- 1pcs of Li-ion Battery
- Quality Check Report

Checking for damage in transit

After unpacking the instrument, check to see whether it was damaged in transit. This is particularly likely if the outer casing is clearly damaged. If there is damage, do not attempt to operate the instrument or to repair it without authorization. Doing so can cause further damage and you may lose your warranty qualification.

4.2 Discharged batteries

There is a battery indicator on the screen to show the remaining charge. There are four status the indicator may show, full, with 2 blacks, with 1 black and empty. If an empty battery indicator flashes it means the power is almost out, and that is when you should recharge the batteries by connect the AC adapter with the instrument. If the discharged batteries get to their limitations after long-time use, please replace it with a new one. To replace the batteries, please remove the battery plate on the back of instrument with a screwdriver.

When the battery charge is extremely low to supply the necessary power, the instrument will automatically switch off.

Note: 1 The AC indicator is not displayed when power is supplied by battery.
2 To eliminate the possibility of acid leakage, please take out the battery if the unit is not used for a long time.

4.3 AC operation

If the instrument is mainly used at one location, e.g. in a laboratory or test department, the AC adapter can be used to power it instead of batteries. There is a DC input jack on the top side of the F2HP instrument casing into which the output cable of the AC adapter is plugged. And when the AC adapter is plugged in, the AC Indicator on the LCD will be displayed.

Note:
1 Power is supplied by the AC adapter even if battery is fitted. And the battery indicator is not displayed on the screen when AC adapter is plugged.
2 Make sure that the operating voltage is within the range of the local AC voltage. e.g. INPUT: AC100-240V, 50-60Hz.

5 Specifications

Optical Specifications

	FHP1A02	FHP1B02
Calibrated Wavelength (nm)	850/1300/1310 /1490/1550/1625	
Detector Type	InGaAs	
Connector	FC/PC SC/PC ST/PC Universal	
Accuracy ①	± 0.35dB±10nW	
Resolution	0.01dB	
Linearity	±5%	
Auto Power Off	Yes	
Back Light	Yes	
Reference Value	Yes	
Measuring Range(dBm)	-60 to +10	-40 to +26
USB Interface	N/A	
Data Storage	N/A	
Wavelength Recognize	N/A	
Tone Detection (dBm)	⩾-40	⩾-20

Note: ① Valid at 1550nm, CW,23±3℃, Relative Humidity ⩽70%, with an FC connector.

General Specifications

Operating Temperature	-10°C to +50°C
Storage Temperature	-20°C to +70°C
Power Supply	1pcs*Li-ion Battery; 5V AC/DC Adaptor
Dimension (mm)	115L*62W*30H
Net Weight	140g

6 Operation

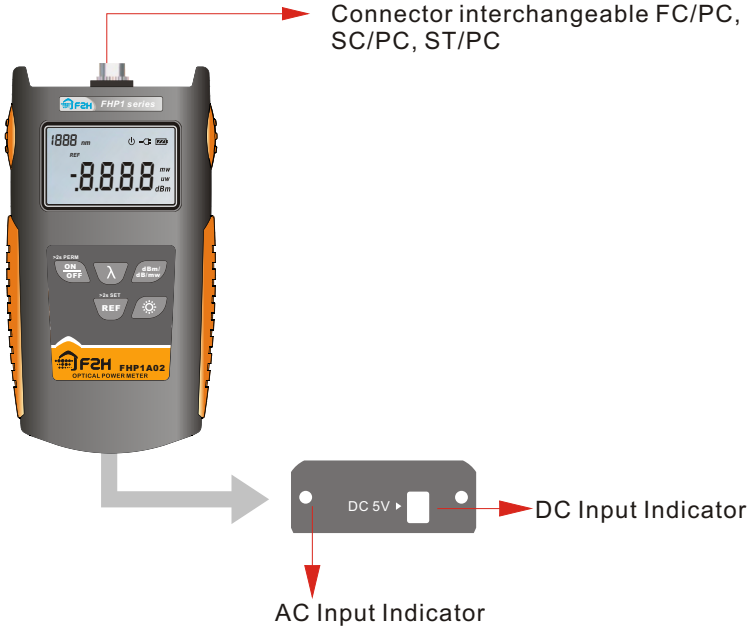
6.1 Display and controls

6.1.1 Keypad

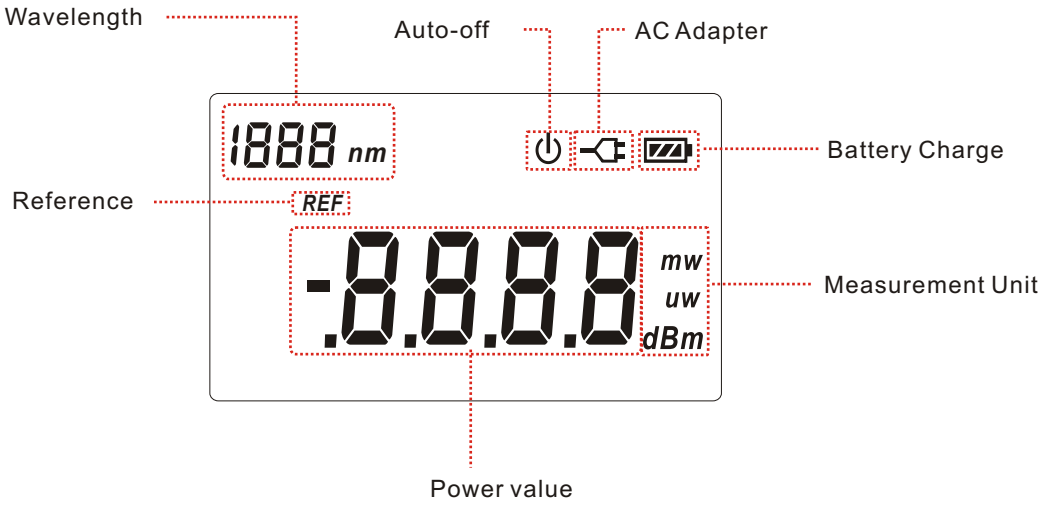
The FHP1 keypad is used to access a wide range of instrument functions.

NO.	Key	Function
1	>2s PERM ON OFF	Switches instrument on/off. Long keypress over 2 seconds while powering on is to activate the instrument without Auto-off function.
2	λ	Short keypress to display reference level of present test wavelength. Long keypress to set a new reference level of present test wavelength.
3	dBm/ dB/mw	Selects measurement wavelengths.
4	>2s SET REF	Switches measurement units among dBm, dB and mw.
5	☼	Switches backlighting on/off.

6.1.2 Back


Connector interchangeable FC/PC,
SC/PC, ST/PC
FHP1 series
FHP1A02
OPTICAL POWER METER
DC 5V
DC Input Indicator
AC Input Indicator

6.1.3 LCD


Wavelength
Auto-off
AC Adapter
1888 nm
Battery Charge
Reference
REF
-8.8.8.8
mw
uw
dBm
Measurement Unit
Power value

6.2 Turning the instrument on and off

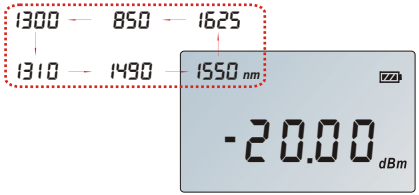
4.2.1. Press the "ON/OFF" key briefly.
The instrument powers on, and backlighting switches on with the short beeper of the buzzer.
Please check the battery capacity and the connection of the battery in the battery plate if it fails.

4.2.2. Press the "ON/OFF" key briefly again.
The instrument powers off, and backlighting switches off with the short beeper of the buzzer. When the battery capacity indicator flashes on the LCD, please recharge the battery or change new batteries. Otherwise, the instrument will be damaged by the shortage of the power.

4.2.3. Turn on/off the auto-off function
The instrument powers off automatically if no keypress in 10 minutes.
Press the "ON/OFF" key for about 2 seconds to deactivate the auto-off function and the indicator will be disappear on the LCD.
The instrument will be power off if the battery capacity is too low to support the operation.

6.3 Setting the wavelength

Press the "λ" key repeatedly until the desired wavelength is displayed. You can select from six possible wavelengths: 850nm, 1300nm, 1310nm, 1490nm, 1550nm and 1550nm. The instrument defaults to the wavelength of 1550nm.



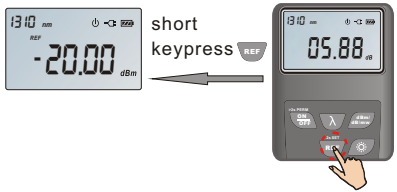
6.4 Setting and checking reference level

6.4.1. Setting the reference level

Press and hold the "REF" key over 2 seconds to store the presently measured value as the new reference level for the current wavelength. Once the new reference level is set, the LCD displays 0.00dB with the beeper of the buzzer and the FHP1 switches to the dB measurement mode.

6.4.2. Checking the reference level

Press the "REF" key to display the stored reference level for the current wavelength and a sign of "REF" will be displayed on the LCD to indicate that it is a reference value. The displayed value only lasts 1 seconds. The instrument switches to the dB measurement mode.

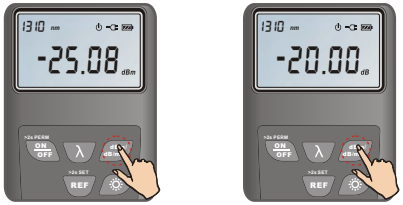


Note: 1. Long keypress REF for over 2 seconds, the unit will be shifted to "dB" automatically.

2.When the input laser power is modulated laser source, it will affect the setting of REF value. Please guarantee the input laser source is CW laser when setting REF value.

6.5 Switching measurement mode

Press the "dBm/dB/mw" key, you can select three measurement modes: dBm for the power value, dB for the relative value and the mw logarithmic value.



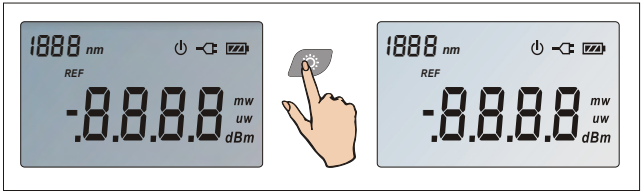
6.6 The overflow of the measured power value

If the measured power value is higher than the highest value of the measuring range,the LCD screen will display "HI".

If the measured power value is lower than the lowest value of the measuring range,the LCD screen will display "LO".

6.7 Switching backlighting of the LCD on and off

Press the backlighting key.
Backlighting switches on.
Press the backlighting key again.
Backlighting switches off.



6.8 Connection with the optial laser source

Connecting with FHS1D series dual-wavelength laser source, FHP1A02 optical power meter can make accurate measurement of the fiber loss at the largest distance of more than300km(@1550). On-the-spot measurement will differ with the working wavelength, fiber attenuation and the testing environment.

7 Maintenance

- Please disconnect the AC adapter/charger and cover the protective dust cap once you finish using.
- It is a good idea to clean the connector and the instrument when they get dirty through use. Optical cleaning pads and anhydrous alcohol is recommended. And please be careful not to get the detergent inside the instrument.
- To ensure the measurement accuracy, please send the instrument to Grandway Service Center for calibration once a year.